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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,079	08/16/2005	Andrej Kitanovski	NITROS P170US	2682

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DAVIS BUJOLD & Daniels, P.L.L.C.  
112 PLEASANT STREET  
CONCORD, NH 03301

EXAMINER
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DOERRLER, WILLIAM CHARLES

ART UNIT	PAPER NUMBER
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3744

MAIL DATE	DELIVERY MODE
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04/10/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,079	<b>Applicant(s)</b> KITANOVSKI ET AL.	
	<b>Examiner</b> William C. Doerrler	<b>Art Unit</b> 3744	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24-46 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6-23-2005</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 26, "fluid in one of a liquid and a state", is confusing.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 24-32 and 35-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay (4,408,463).

Barclay discloses applicants' basic inventive concept, a magnetic refrigerator that rotates a magnetic fluid through a housing with half of the housing being effected by a superconducting magnetic coil, with a heat transfer fluid passing through the rotating material to a heat releasing heat exchanger after passing through the magnetic field and to a heat accepting heat exchanger after flowing through the non-magnetic side of the housing, substantially as claimed with the exception of using separate heat transfer fluids for the heating and cooling heat exchanger. This is seen as a matter of obvious design choice for an ordinary practitioner in the art. The splitting of one heat transfer path that passes both through a heating heat exchanger and a cooling heat exchanger into two separate heat transfer passes is seen as obviously reducing the heat transfer between the heat producing and heat accepting portions of the magnetic material, while requiring two pumps. In regard to claim 27, the reversal of the system is seen as obvious to an ordinary practitioner in the art as the system is shown to produce heat and cooling and heating volumes which are sometimes cooled by a system is well established, the home heat pump for example. In regard to claim 29, line 23 of column 4 states that other types of magnets may be used. In regard to claim 32, line 30 of column 7 states that compensation coils can be used in conjunction with the soft iron shielding members to contain the magnetic field. In regard to claim 42, see the top of

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column 7. In regard to claim 44, using tubes to permit the passage of heat transfer fluid through the magnetic material is seen as obvious to an ordinary practitioner in the art to provide an obstructed passage through the material to reduce fluid losses.

Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay in view of Zimm et al (6,668,560).

Barclay discloses applicants' basic inventive concept, a magnetic cooling system with heat transfer fluid passing through rotating magnetic material, substantially as claimed with the exception of using a rotating magnet. Zimm et al shows this feature to be old in the magnetic cooling system art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Zimm et al to modify the magnetic cooling system of Barclay by using a rotating magnet to modify the magnetic field to produce the cooling to permit easier fluid management of the heat transfer fluid. In regard to claim 34, the use of two magnets used alternately instead of one moving magnet is seen as a matter of ordinary design choice for an ordinary practitioner in the art.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay in view of Hed (5,091,361).

Barclay discloses applicants' basic inventive concept, a magnetic cooling system with heat transfer fluid passing through rotating magnetic material, substantially as claimed with the exception of using a superconductor as the magnetic material which produces the cooling. Hed shows this feature to be old in the magnetic cooling system art. It would have been obvious to one of ordinary skill in the art at the time of applicants'

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invention from the teaching of Hed to modify the magnetic cooling system of Barclay by using a superconductor for the cooling producing material to reduce internal losses within the material.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Barclay et al (2002-0040583, Ghoshal, Zimm et al (6,526,759), Kirol, Peschka et al and Hakuraku et al show rotary magnetic cooling systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner  
Art Unit 3744

WCD

/William C Doerrler/  
Primary Examiner, Art Unit 3744